Chariots of Fire

Autonomous Airborne Hyperspectral MASINT System

Chariots of Fire is a lightweight, low power consumption Measurement and Signature Intelligence (MASINT) system, comprising:

- An airborne segment featuring an imaging acquisition system mounted on an airborne platform
- A ground-based mission management and data interpretation system

Fully autonomous and simple to operate, Chariots of Fire contains a primary Hyperspectral Imaging System (HIS) and a secondary bore-sighted high-resolution panchromatic camera, capable of stereoscopic imaging.

Main Advantages & Features

- Unique and exclusive identification capabilities
- Quick and automated interpretation, independent of interpreter skills and alertness
- High interpretation rate (high area coverage rate)
- Capable of quantifying material and time
- Immune to deception attempts

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Applications

- Material identification
- Environmental hazards
- Geosciences - mineralogy, soil type
- Vegetation – chlorophyll, lignin, cellulose, pigments, etc.
- Biomass burning
- Atmospheric applications - water vapor, cloud properties, aerosols, gas absorption
- Oceanographic - chlorophyll, dissolved organics, sediments, bottom composition
- Littoral surveys & bathymetry
- Snow and ice hydrology - snow cover fraction, grain size, impurities, melting
- Urban ecology - land use, building structure, etc.
- Operation support / trafficability analysis
- Identification of aircraft/helicopter landing zones
- Beach and beach egress zone characterization
- Detection of human presence, vehicle passage
- Camouflage detection
- Submerged vessel detection
- Search and Rescue
- IED detection

CPS
Camera Power Supply

DRS
Data Recording System

SMU
System Management unit

Technical Data

Flight altitudes	4,500 – 25,000 ft.
Ground speed	70 -120 kn.
Area coverage rate	100 km^2/hr. (@ 15,000 ft.)
Spectral range	350 nm - 2500 nm
Single band width	10 nm
Spatial resolution:	
- Hyperspectral	2 m @ 15,000 ft.
- Pan	0.5m @ 15,000 ft.
Spectral ranges:	
- VNIR	0.35 – 1.0μm
- SWIR	0.9 – 2.5μm
Pointing accuracy	5.5 m [1σ]
Weight	<60 kg (including cables)
Power	260W

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